AMENDMENTS TO THE CLAIMS:

Without prejudice, this listing of the claims replaces all prior versions and listings of the claims in the present application:

LISTING OF CLAIMS:

Claims 1 to12. (Canceled).

13. (Currently Amended) A method for reducing distortion of an optical pulse contained in a communication-transmitting luminous flux in an optical communication system caused by polarization mode dispersion, comprising:

driving a polarization-controlling device to adjust a polarization of the optical pulse so that a transmission quality of the optical communication system is maximized, wherein the driving of the polarization-controlling device functions in response to the transmission quality detected; and

using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system,

wherein the polarization of the optical pulse is reset in predefined time intervals for optimizing communication.

14. (Canceled).

15. (Canceled).

16. (Previously Presented) The method of claim 13, further comprising:

altering the polarization of the optical pulse at an output end of the optical communication system using the polarization-controlling device,

wherein the optical pulse propagates through an analyzer following the optical communication system.

17. (Previously Presented) An optical communication system having reducible distortion of an optical pulse propagating through the optical communication system and contained in a communication-transmitting luminous flux, comprising:

an optical transmission medium for transmitting the optical pulse;

a determining device to determine a transmission quality of the optical communication system, the determining device having an output;

a polarization-controlling device;

a regulating device having an input;

a beam splitter for coupling out and supplying a small portion of the communication-transmitting luminous flux to the determining device;

wherein a signal from the output of the determining device is applied to the input of the regulating device, and

wherein the regulating device is configured to drive the polarization-controlling device for changing a polarization of the optical pulse so that the transmission quality is optimized.

18. (Previously Presented) The optical communication system of claim 17, wherein the polarization-controlling device is disposed at the input of the optical transmission medium.

19. (Previously Presented) The optical communication system of claim 17, further comprising:

an analyzer, the analyzer being disposed in a propagation direction of a light, downstream from the polarization-controlling device; and

wherein the polarization-controlling device is disposed at the output of the optical transmission medium.

20. (Previously Presented) The optical communication system of claim 17, wherein the polarization-controlling device includes a first $\lambda/4$ delay element, a $\lambda/2$ delay element and a second $\lambda/4$ delay element, the first $\lambda/4$, $\lambda/2$ and second $\lambda/4$ delay elements being disposed in series as $\lambda/4$-$\lambda/2$-$\lambda/4$ and being adjustable.

21. (Previously Presented) The optical communication system of claim 19, wherein the analyzer is a linear polarizer, and the polarization-controlling device includes at least an adjustable $\lambda/4$ delay element and an adjustable $\lambda/2$ delay element.

22. (Previously Presented) The optical communication system of claim 21, wherein at least one delay element includes a liquid crystal element.

23. (Previously Presented) The optical communication system of claim 21, wherein at least one delay element includes an electro-optical crystal.

24. (Previously Presented) The optical communication system of claim 21, wherein at least one delay element includes at least one of a mechanically adjustable element, an electromotively adjustable element and a piezoelectrically adjustable element of three fiber loops.

25. (Currently Amended) The method of claim <u>13</u> [[14]], wherein resetting the polarization compensates for time-related fluctuations of birefringence.

26. (Previously Presented) The optical communication system of claim 17, wherein the polarization-controlling device includes a first λ/4 delay element, a λ/2 delay element and a second λ/4 delay element, the first λ/4, λ/2 and second λ/4 delay elements being disposed in series as λ/4-λ/2-λ/4 and being adjustable.

27. (New) A method of reducing distortion of optical signal transmission in an optical communication system, comprising:

providing the optical communication system having at least one section of optical transmission medium which exhibits one of a preferred and a substantially constant birefringence;

transmitting an optical signal in the optical communication system;

measuring a transmission quality of the optical signal of the optical communication system;

transmitting the optical signal indicative of the measured transmission quality to a regulating device;

driving, by the regulating device, a polarization-controlling device to alter the polarization of the optical signal so that the transmission quality is optimized; and

using a small coupled-out portion of communication-transmitting luminous flux of the optical signal to determine transmission quality,

wherein when within the at least one section of optical transmission medium, the optical signal propagates only in one of a channel having a high rate of propagation and in a channel having a slow rate of propagation to prevent any splitting or widening of the optical signal.

28. (New) The method of claim 27, further comprising:

measuring the transmission quality again so that:

if the transmission quality has increased, then resetting by the regulating device the controlling element further in the present direction;

if the transmission quality has decreased, then resetting by the regulating device the controlling element in a different direction;

if the transmission quality evidences insignificant change, then resetting by the regulating device of the polarization-controlling element in a direction orthogonal to a first direction in the parameter space,

wherein the measuring and resetting step is repeated at predefined spaced-apart time intervals to maximize the transmission quality of the optical communication system .

29. (New) The method of claim 28, wherein a polarization-controlling device is connected at the input of the optical communication system.

30. (New) The method of claim 28, wherein the polarization-controlling device includes at least one of a $\lambda/4$ delay element and a $\lambda/2$ delay element, the delay elements being disposed one behind the other and being adjustable to losslessly convert the light into a required polarization state.

31. (New) The method of claim 28, wherein the polarization-controlling device is connected at the output of the optical communication system.

32. (New) The method of claim 28, wherein an analyzer is connected downstream from the polarization-controlling device.

33. (New) The method of claim 27, further comprising:

redundantly monitoring the optical communication system by observing parity information extracted from the optical communication system.

34. (New) The method of claim 27, wherein the optical signal is first transmitted to the polarization-controlling device, then transmitted to the optical transmission medium, then transmitted to a beam splitter, the beam splitter coupling-out luminous flux of the optical signal, then the coupled-out luminous flux of the optical signal is transmitted to a detector which converts the luminous flux into an electric signal, and then the electric signal is transmitted to a measuring device to measure the transmission quality from the electric signal.

35. (New) The method of claim 13, wherein the predefined time intervals are set to zero.